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ABSTRACT

This paper presents a model for learning a second language developed on the basis of existing models for taxonomies of learning objectives. Three interrelated domains of language learning are examined: (1) the affective domain (willing), (2) the cognitive domain (thinking), and (3) the psychomotor domain (doing). An attempt is made to develop a basis for a new, unified theory of second language acquisition. (RL)

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OBJECTIVES, LEARNING TASKS, AND TESTING IN FOREIGN LANGUAGES

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by

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Good testing should be based on effective and well motivated learning. It should be desired by the student rather than hated and thus be recognised by him as an important learning experience as a means to assess his achievement and progress within the learning system. Tests given at frequent intervals not only measure student progress, but also improve the degree of learning motivation and they can be used for analysis and improvement of the teaching program. "Teaching tests" fulfill a function also as "learning tests". In our English Language Programs at Monash University we use diagnostic tests achievement tests and a great number of weekly "progress tests". The areas tested usually are listening comprehension, speaking, reading and writing. Special tests are designed for structure recognition and production, vocabulary recognition and production, sound-symbol correlation, intonation, stress and juncture. In speaking tests, sound production, speed, intonation and word and sentence stress are evaluated in addition to structure and vocabulary.

Foreign Language Learning is something special. As Carroll has pointed out (1962) it is not necessarily dependent on intelligence. It is a complex behavior which is highly successful in individuals who can combine their considerable potential in sensory imagery with abilities in associate recall, in "phonetic memory", and in "grammatical sensitivity". Success also depends on high motivation to accept, study and acquire "foreign" or different social codes.

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Foreign language learning most certainly includes inductive as well as deductive processes as cognition and production in the communication act necessitates them and as reflective and associative thought involves them. These processes stretch across the areas of all language skills. They are not limited to the one or the other "skill" because language is an integrative behavior. Ideally speaking, our ultimate goal is the "total language experience". This does not preclude that preference is given to a specific skill in teaching a specific target group.

What I would like to do in this paper is not so much to discuss types of tests and the mechanics of testing but to stimulate your thought about language learning with a view on new approaches to testing within a learning system.

For this purpose I propose to present a model for learning a second language which I have recently developed on the basis of existing models for taxonomies of learning objectives.

It may be useful to look at language learning as a process which occurs simultaneously on three planes or in three domains: that of "willing" (the Affective Domain), that of "thinking" (the Cognitive Domain) and that of "doing" (the Psycho-motor Domain). The first and, most important one - deals with attitude, motivation and interest. The second is concerned with all processes of the human mind such as cognition, coding, the formation of Gestalten, associations and so forth. The third domain encompasses all psycho-motor activities in language expression - whether with the vocal organs, with the fist or through body movements, facial expressions and gestures.

This "tripartite" division is adopted for reasons of convenience in systematization and organization, - it never exists in reality in clear-cut divisions rather the human computer creates a complex web of interconnections and correlations in the mysterious "language acquisition device".

The organization of learning objectives in the cognitive and affective domains was developed by Bloom (1956) Krathwohl et al. (1964) for learning objectives in all educational subjects. This taxonomic model is graded from simple to complex behaviors in the cognitive domain, and from negative or neutral attitude towards awareness, response and value formation in the affective domain. A taxonomic model for the psychomotor domain, so important in language learning, was not developed but only postulated by these authors.

Since foreign language learning is believed to be quite different from other types of learning, one might object to an application of such a taxonomy to our field. However it may be interesting to first examine this proposition.

Such an examination should be undertaken with two important provisos: first, our model is not meant to be prescriptive but only a framework of a descriptive nature as far as it can lend itself to an adequate, comprehensive and economical analysis. Second, the taxonomy is not prescriptive in the distribution of emphases in a specific domain or at a level of such.
Adaptations can be made for individual types of learners (and groups of learners) and emphases can be ordered according to specific needs.

The model which I am presenting to you was developed for adolescent learners and adults although I think it can be adjusted to all age levels.

The following graph presents one way to illustrate the inter-relation of the three domains, - cognitive abilities, psychomotor skills and affective behaviors. These domains, within the learner have to be ordered and set in relation to the different layers of language:

(1) the types of perceptual and motor skill learning on the linguistic surface level, and (2) the types of cognitive abilities and (3) affective behaviors on the referential, imagic, and cultural levels.

With such a scheme it is possible to visualize the various abilities and skills needed for effective language learning which can be identified in terminal criterion behaviors. From these objectives can be derived and an inventory of testable learning tasks can be established.

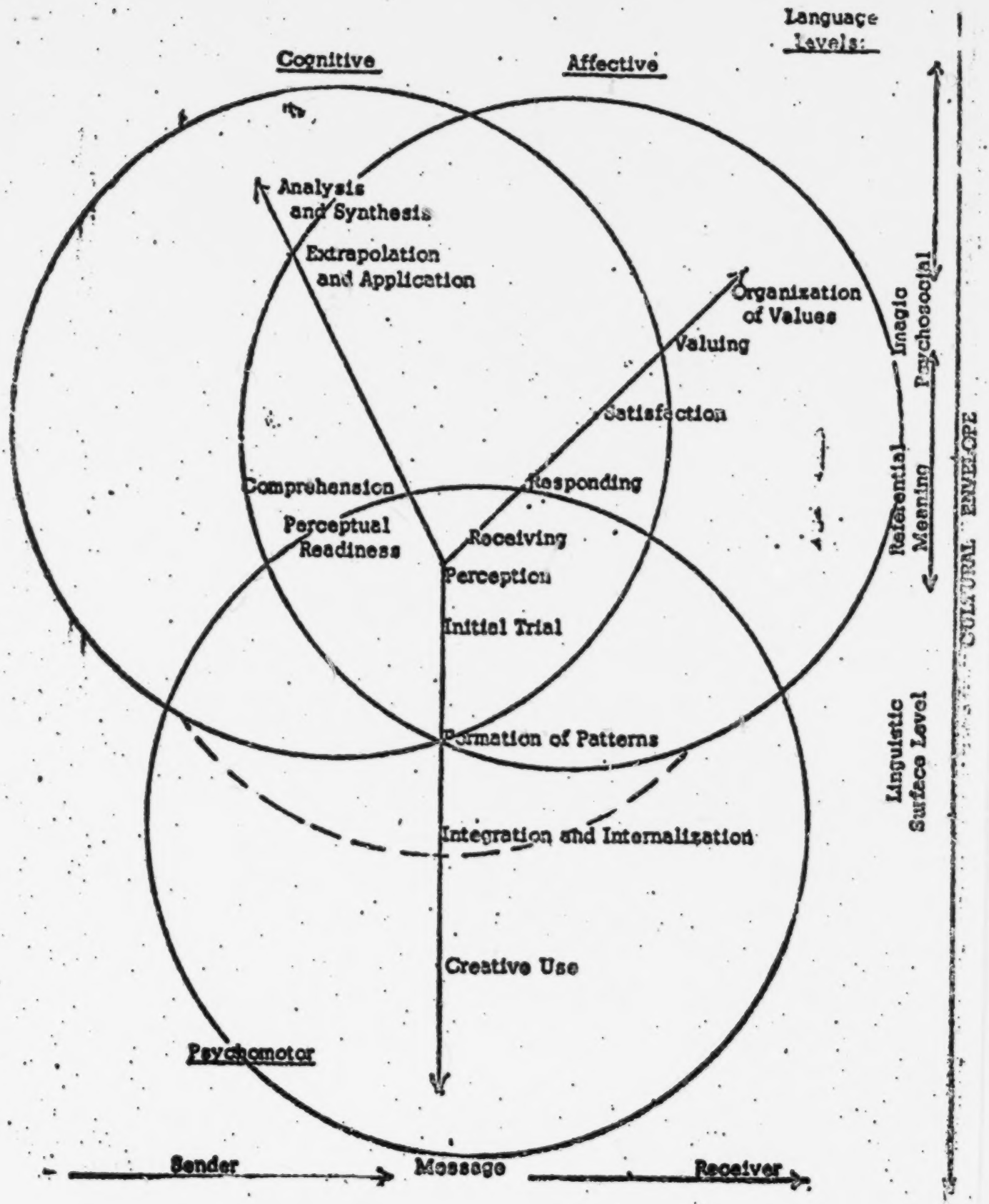
In development the above model, I attempted to arrive at a basis for a new unified conception of language learning. Upon which a more meaningful and more comprehensive hierarchy of objectives can be built, and which may also contribute to greater ease and economy in organizing the learning process. As Bloom (1965, p.21) says: "Properly used, a taxonomy should provide a very suggestive source of ideas and materials for each worker and should result in many economies in effort." Thus, the taxonomy developed in my study aims at a better understanding of the learning process through improved means of analysis.

The gradation of abilities and skills in foreign language learning is of great importance for teaching and testing.

Each of the major categories of objectives was divided into sub groups of possible, not mandatory goals which, from a practical point of view may occur in the learning continuum. Although the main groups of objectives are supposed to build on each other in sequence, sub goals may co-occur or be integrated in other goals. In this way, language behaviour can be interpreted as a three-level process composed of continua in all three domains of learning which in fact largely co-occur, interact, and complement each other. For convenience of analysis terminal behaviors specified in the objectives of each domain are listed in each domain separately. Reference to sequence and interaction with objectives in the other domains can be made in specific instances.

When we prepared the taxonomy, Bloom's and Krathwohl's categories appeared to find justification in a hierarchical system of objectives for language learning.

Krathwohl's taxonomy of educational objectives in the affective domain comprises five major categories: receiving, responding, valuing, organization,



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and characterization by a value or value complex. The cognitive domain according to Bloom comprises six categories: knowledge, comprehension, application, analysis, synthesis, and evaluation. Each of these categories was carefully analyzed in its application to second language learning. This resulted in substitutions, extensions, and modifications of categories before specifications could be made for individual objectives in each of these categories.

It was necessary to proceed in two steps: (1) to discuss the objectives in foreign language learning, and (2) to verbalize the objectives evolving from the discussion-analysis in the form of behavior definitions as suggested by Mager (1962), Tyler (1964), and others.

The categories had to be re-interpreted and re-appraised in the light of the source science, i.e., in consideration of pertinent studies in research and theory of psycho-linguistics, of socio-linguistic analysis, and of research data in language acquisition. In a unified approach one could define cognitive: levels as dealing with major components of competence in language as opposed to production. Both of these, however, should be integrated into specific learning goals which build on each other. Only through constant observance of the inter-dependence within and among domains can taxonomies of objectives and of testable learning tasks become useful and appropriate tools for the analysis of the complex behavior of language learning.

The interrelation and co-occurrence of cognitive, affective and psychomotor behaviors can be regarded a continuing feature of the learning process. The foreign language student obviously often uses motor responses to manifest affective behavior, cognitive awareness, understanding and application. From overt responses one infers that the student has applied his cognitive abilities in comprehension and application or that he has reached a certain level in the affective domain. We are limited to this assumption because

no entirely objective and comprehensive test measures have been developed for all three domains. So-called objective tests inevitably include some degree of the test developer's subjective judgment.

An example in cognitive and psycho-motor behavior may illustrate this inter-relation. A motor performance such as using the mother tongue or the foreign language for a response in writing and speaking or for kinesic behavior should not be regarded as part of a criterion behavior of cognitive ability. Overt responses to listening comprehension, "discrimination" or "interpretation" may be manifested by checking multiple choice items or answering yes-or-no questions, underlining, etc. However, in either case the psycho-motor response act only partially manifests a cognitive ability, or - if we prefer Bruner's term - a cognitive "skill" which is not a psycho-motor skill but a "skill in the use of the mind" (Henla, 1966, p.53). Some psycho-motor skill responses and multiple discrimination tests, then, may only be vehicles for teaching and measuring cognitive abilities. They may be affectively rewarded through free access and with unrestricted facilities for repetition until mastered.

In foreign language learning no domain can be assessed while excluding components of the other domains in the medium of language, and the question is whether it should be. In language learning, combination behaviors represent the ultimate goals which lead the learner to creative expression. Therefore, in the categorization and definition of some objectives, such combination behaviors should also be considered in test construction. Precise analyses of the constituents of composite behaviors in verbal learning are still missing since quantitative values or weights have to be assigned each constituent process and combination rules have to be worked out in order to arrive at a synthesis of composite behaviors (Underwood, 1966, p.498).

Pending the development of such quantitative assignments, we can accept a strategy in deriving objectives in the three domains of language

learning. Thus we may be able to correct common misconceptions about teaching foreign language "skills" by means of a mechanistic skill approach which ignores or neglects the cognitive and affective components. Skills in foreign language learning really represent basic types of proficiency in the mechanics of language and speech which the sender and the receiver manipulate on the linguistic surface level (see graph below). The term skill henceforth could be reserved for the psycho-motor domain only. Cognitive abilities in foreign language learning are concerned with understanding, interpreting, extrapolating, analyzing, and synthesizing on the referential, imagic, and cultural envelope level. These levels, seem useful for the classification of learning objectives in order to differentiate language skills from abilities since language competency is a complex behavior an immediate problem arises with the question for the role of specificity of simple behaviors which lead to complex or more internalized behaviors. The strategy employed in my study basically followed the one suggested by Bloom and his co-workers. It was also described by Banathy in his "Theory of Selection and Organization Content" (1956).

We made every effort to keep the taxonomy neutral with regard to psycholinguistic theories and as much as possible, objectives from different schools of thought were included in the continum. The process of selection and classification was that of analysis-synthesis -reduction to practice. In this way we proceeded from a definition of need and purpose as established by the society, the educational system and the learner, to overall educational objectives. Then we proceeded to an interpretation of specific-to-language objectives for the adolescent and young adult learner of a foreign language.

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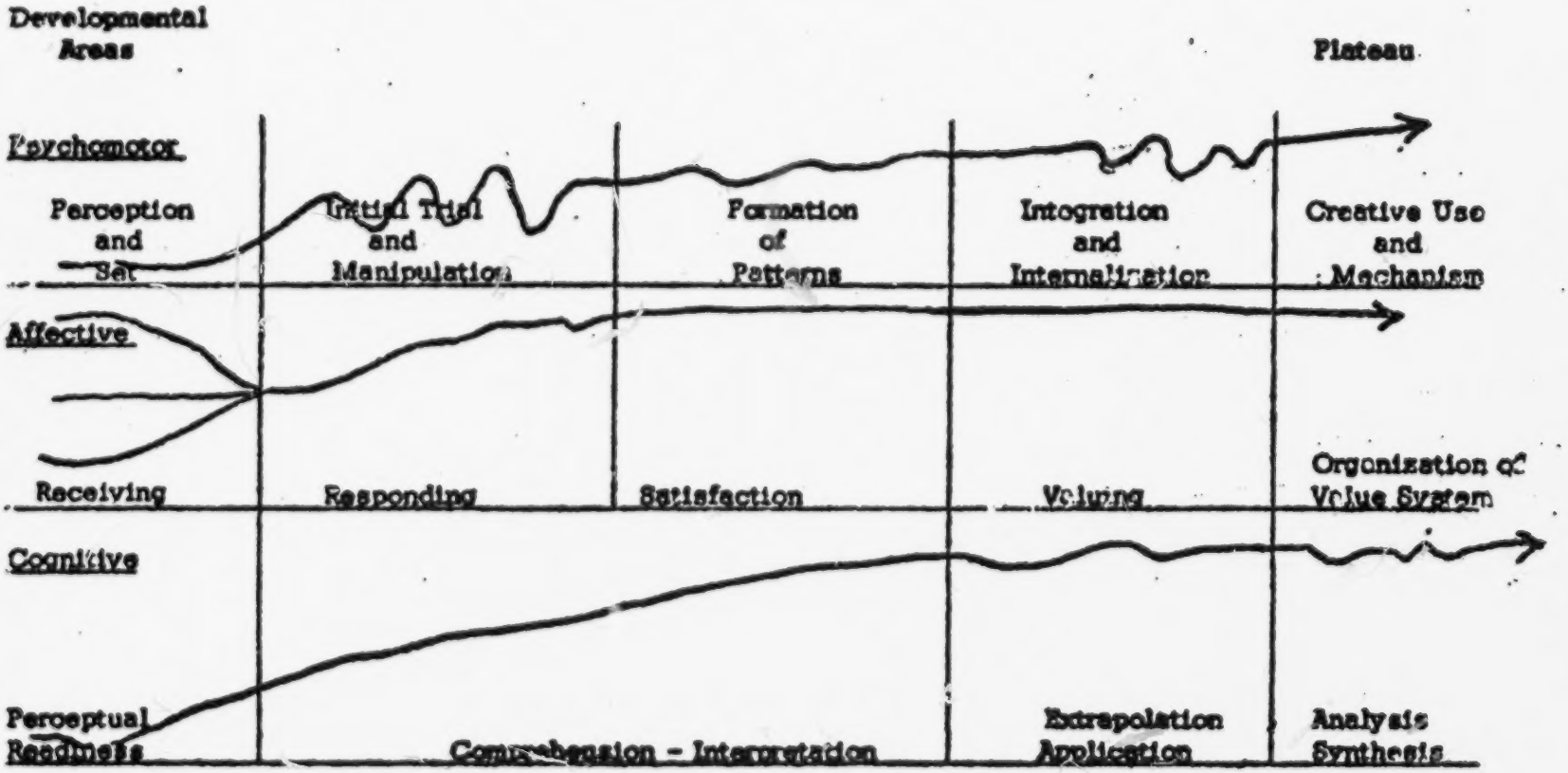
The Development of Psycho-Motor Skills



This new classfication of objectives is presently being tested at Monash. We hope it will provide the materials developer, and the curriculum-maker with samples for course and test construction. As stated above, the objectives derived from the model are adjustable to student variables and variables of program-concentration. They will yield inventories of testable learning tasks. Specific decisions must be made by the materials developer in selecting objectives for special programs according to special needs and possibilities of the student. In this respect, for example, not all objectives may be desirable for all learners in all foreign language programs. In the graph below you will see an example of variables of program concentration as it was worked out for a specific elementary program in foreign language.

The graph shows the interrelation of the developmental areas along continum curves in the three domains of learning. Their comparative magnitude indicates the emphasis assigned to progressive levels in each domain as language skills and abilities are developed. Each of the five stages of the developmental process of psycho-motor skills represents a category for the classification and specification of objectives.

The model is subject to change and validation. Its purpose is not to present one best solution. It is based on the hypothesis that at every stage of the development of the three components of learning there is possibility for growth and a need for correlation and coordination although emphases may change on various flexible individual scales.

Most recently the question has been raised whether habit-learning is the basis of second language learning, or whether it should be rejected. While the program-developers in the above example could not give a conclusive answer they decided that a one-sided interpretation of skill learning should also be avoided. The question is not whether learning a second language is based on habit-formation or not. It should rather be: when does it

take place, for what purpose and to what extent. The important factor it was pointed out, is the amount of interaction between the psycho-motor and the cognitive and affective behaviors. "Parrot-like" language behavior so often criticized in early audio-lingual programs resulted from an over-emphasis assigned to mechanistic motor-activities located at the lower end of the continuum at the expense of cognitive and affective processes, and higher level psychomotor skills.

It was assumed that the "communication level" could be reached by developing the psycho-motor domain alone through practice in habit-formation and conditioning of S-R processes. This major handicap really was the lack of balance among the different domains of learning. It is not impossible in a formal school situation to reach the communication level within certain limits, but it is impossible to assume that it can be reached through the development of the psycho-motor domain alone at the expense of cognitive and affective behaviors. From this we may hypothesize that the learner is unable to develop his psycho-motor skills in communication beyond single-item manipulation unless the cognitive and affective levels are developed to an appropriate degree. The degree of attainment in the psycho-motor domain may increase only after a latency period with initially higher attainment levels in the other two domains.

Since language learning aims at long-range retention, we should be seriously concerned with recall and retention of cognitive-psycho-motor behavior. In each of the four skills a solid foundation for recall and retention can be laid in the comprehension - interpretation phase of the learning process during which the formation, organization and some manipulation of language patterns takes place. Ideally, in this phase, the learner also develops an active interest and a warm, positive attitude towards the subject, the culture, and the learning system. He concentrates his efforts on firm formation of learning sets in all three domains and makes frequent attempts

to interpret new material, while at the same time being open to refine or change his "guesses" or approximations which may prove to be inaccurate. The learner's open attitude and willingness to respond and to try may well be decisive for integration, patterning, and retention of motor behaviors and concepts. Once efforts at interpretation have begun, the learner can be reinforced and rewarded when he encounters the material again in context and when his interpretation is confirmed as being correct (for example through "guided learning experiences" in self-instructional programs). This material, then, becomes more readily available not only for listening and reading, but also for speaking and writing, since it has been derived in a conscious though process associated with psycho-motor clues within appropriate context. Neither the number of occurrences nor the amount of practice is decisive. Rather, it is the strength of impression and the contiguity as the learner perceives it, the development of his "feel" through a willing mind that is essential.

Finally, we may want to mention various performance criteria as observable and measurable for individual goals in each of the categories in the psycho-motor domain:

1) reaction time for making a response.

2) speed of delivery of a response.

3) accuracy of a response.

4. meaningfulness of a response or clarity of intent.

5) selection of the appropriate cue for the orientation of a response in complex tasks.

6. steadiness of one or several of the above factors.

7. meaningful coordination of a series of responses.

It may be noted that 1) to 3) above constitute the "automaticity" of a response; 1), 3) 4) and 5) are related to the comprehension of the task and the material, and 5) to 7) indicated integration of a more complex psycho-motor task. If all criteria are combined and developed to a maximum, optimum integration has been reached in performance.

Especially factor 5), selection of the appropriate cue, has been too narrowly conceived in our teaching and testing procedures. Cue selection for orientation of a response, which the learner makes through sensory perception and/or cognition, can be regarded as an objective and criterion in itself and need not be contaminated through the additional difficulty of a motor response goal. For instance, in audio-comprehension tasks, the learner should get recognition for appropriate responses in his native tongue. He should also be given credit for partial fulfillment of a communication task if he is able to recognize signals of various audio-visual "learning modes" and if he can prove that he could react appropriately in his native language. (viz: Testing devices as provided in the developmental stages of the Carroll-Sapon MLAT)

In my research I have experienced the value of recognizing this factor in all three domains of learning: attitudes (student's confidence and motivation), cognitive understanding (the student's train of thought was not interrupted), and psycho-motor (Although the student sometimes gave a response in English, he afterwards also tried to respond in the foreign language).

It is important to note that the identification of the above factors has a great potential in considering individual differences by allowing various levels of performance in varying combinations because perception in second language learning relates to the student's sensitivity to different visual, auditory, or kinesthetic cues. The prerequisite to any verbal psycho-motor activity is the

aspect of perceiving the task, or the identification of sensory stimuli, e.g., different grammatical signals not used in the native language, phonemic and melodic contrasts. In the case of a stimulus composed of more than one element, the student has to perceive and identify the stimulus elements which are relevant for the task at hand. He also has to make the necessary neuro-muscular or attitudinal adjustment necessary for carrying out the verbal act.

Evidence for the functional value of these criteria in verbal learning can be found especially in psychological research. (Fleishman, 1966), (Underwood, 1966). Observations about motor skill learning and verbal learning refer to reaction time, perception and search processes, coordination of individually learned skills, stimulus selection, and continuous performance. These may also be of interest to second language learning and testing.

In research on language teaching, workers such as Marty (1966) stress accuracy in reading aloud, spelling, written expression, oral expression, and comprehension, as well as oral fluency and reaction speed as particular goals. In language testing, specifications can be made and levels of performance can be established especially for speed (rate) of delivery in speaking, listening, and reading: accuracy in all four skills: appropriateness and meaningfulness of a response in listening and reading comprehension and speaking, and meaningfulness in speaking or writing utterances beyond the sentence level (paragraphs). However, so far, not much consideration has been given to a recognition of all the above factors in all four language skills, and for verbal as well as non-verbal responses (action-responses) or (kinesthetic responses).

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NOTES

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